REMARKS

Applicants thank the Examiner Mr. Louis-Jacques, for his courtesy and assistance in advancing the prosecution of this application during an interview held January 14, 2004. As indicated in the Interview Summary (Paper No. 9) during the interview, the Examiner and Counsel discussed proposed amendments to claim 1, as well as the addition of new claims 11 and 12 embedding the substance of claims 8 and 9, respectively, in independent form. At the conclusion of the interview, as indicated in the Interview Summary, the Examiner agreed to reconsider the rejection and the prior art in light of the arguments discussed, as set forth below.

The rejection of claim 8 under 35 U.S.C. §112, second paragraph, as set forth in paragraph 2 of the Office Action, as been rendered moot by the cancellation of claim 8. However, the cited phrase "the navigation unit" in claim 8 has been amended in new claim 11 to refer to "a navigation unit", as suggested.

Claims 1-8 and 10 have been rejected under 35 U.S.C. §103(a) as unpatentable over Vieweg (U.S. Patent No. 6,067,501) in view of Honkomp et al. (U.S. Patent No. 6,345,229). In addition, claim 9 has been rejected as unpatentable over Vieweg in view of Honkomp et al. and further in view of Watt et al. (U.S. Patent No. 5,995,895).

The present invention is directed to a vehicle data bus system which includes a location determining arrangement that provides position information

not only to a navigation unit, but to other bus subscribers, including a telematics unit that provides communications between the vehicle systems and remote locations, for performing functions, such as emergency calls, pursuit of thieves, communication of traffic situation data and the like. It is noteworthy in this regard that, in earlier vehicles having a location determining device on the one hand, and a data bus with connected vehicle control devices on the other hand, the two systems (the locating device and the data bus and coupled control devices) formed entirely separate vehicle subsystems. In particular, the locating devices were frequently provided in the form of an integrated component that was connected upstream of a vehicle navigation unit, for the sole purpose of supplying position and situation data for navigation and visual display. Such a configuration is of course wasteful, and unduly complicates the architecture of the overall vehicle system.

The present invention addresses and resolves this problem by providing a vehicle data bus system in which a locating module is embodied as one of the bus subscribers and provides locating information by the data bus to other bus subscribers, which use such information for a variety of control purposes. The locating module, in turn, requires at least part of the information necessary for performing its location functions by other data bus. This requires internal sensors to provide the remainder of such information. In particular, the locating module includes, in addition to a locating computing unit, a GPS receiver and a gyro-scope.

As described, for example at paragraph [0027] of the specification, the position information output to the data bus system according to the invention includes, not only the "position" of the vehicle in a generic sense, but also, direction of travel angel, travel speed and its altitude. The lateral information, including the altitude position data generated by the locating module is supplied by the data bus to other bus subscribers, including an engine or gear box control, which uses the altitude position data in place of data from a separate altitude sensor, as recited in claim 12 (former claim 8). In addition, as noted previously, the bus system also includes at least one telematics service unit which is coupled as a bus subscriber, in which uses the data acquired from the locating module from a navigation unit.

The cited Vieweg reference, on the other hand, discloses a process for selecting traffic information from a plurality of vehicles which are collecting such information as a travel within a road network. For this purpose, it is frequently useful to draw a distinction between long distance traffic on a highway, for example, and city traffic, as discussed at column 1, lines 40-50 of Vieweg.

The Vieweg patent provides a method and apparatus for accommodating this need, by automatically recognizing the type of road on which a vehicle is traveling, so that the gathering of data can be limited automatically to those vehicles which are traveling only on the type of roadways which are of interest. (See, for example, column 1, lines 49-50; column 2, lines 4-21). It does so, based on the principal that certain types of roads such as (highways on the one hand

and city streets on the other) can be distinguished relatively by means of certain characteristic geometric features. That is, the smallest permissible radius of curvature is much larger for a highway than for a city street. Similarly, if the travel routed exhibits a change of direction that exceeds a preset maximum value, it is possible to infer that it is a city street. In addition, it is possible to extrapolate a determined course of a route segment and compare the predicted position with the actual position. If the deviation exceeds a maximum permissible value, a conclusion may also be drawn concerning road types. (See column 2, lines 56 through column 3, line 8).

In this manner, a reliable basis can be provided for the selection of traffic information, as referred to previously. As can be seen from the foregoing description, the determination as to the type of route which is currently being traveled by a particular vehicle is made based on geometric data concerning the shape (see Figure 1) of the route traveled. Thus, what matters is not the exact absolute position, but rather the exact possible determination of the individual positions relative to each other, as described at column 3 lines 15 through 20. (See also column 4, lines 8-11 and 15-26).

As it is apparent from the foregoing brief description, although Vieweg includes some of the same components as the present invention, including a location finding device, a processor, and a communication device, it differs fundamentally from the present invention. That is, in particular, it does not disclose "a shared" locating module, such as defined in claim 1, for example,

which produces position information, including in particular altitude data, which are provided via a data bus to a plurality of other data bus subscribers, for use therein. It also fails to teach or suggest a system in which such position information, including altitude information is supplied via the data bus to an engine or gear box control, which uses the altitude data, in particular, in place of data from a separate altitude sensor. It also fails to suggest the provision of such data to a telematics unit, in a manner defined in the claims.

The Honkomp et al. reference, on the other hand, discloses a position determining method and apparatus in which a location device 1 receives position information (for example GPS data) from an antenna to, as well as signals from, a variety of sensors, including speed, acceleration, wheel speed, transverse acceleration, and yaw rate, as shown in Figure 1, and discussed in the specification at column 3, lines 17-31. The location, as determined by the location device, is then output in the form of an absolute position signal to the navigation device 3, which uses stored map data to correct the absolute position signal A by means of a map matching position. The navigation device 3 then returns a position quality signal P to the location device, where it is utilized for a determination or correction of the corresponding algorithm for determination of the absolute position P. (See, for example, column 3, lines 59 through column 4, line 20). The navigation device then outputs a relative, or map matching position which is used by a navigation system, as described in the specification at column 4, lines 28-33.

As with Vieweg, the Honkomp et al. reference also fails to teach or suggest a system in which position information determined by a locating module is output via a data bus and shared with a plurality of other data bus subscribers for control purposes. More particular, it fails to teach or suggest such a system in which, among other things, altitude position data are generated and shared in this manner, as recited in claim 1, or in which such shared altitude position data provided to an engine or gear box for use in place of a separate altitude sensor, as recited in claim 12, or provided to a telematics unit, as recited in claim 11.

Finally, the Watt et al. reference discloses a vehicle navigation system which uses position information, (such as from a GPS system) together with geo-reference map data, including altitude data which is stored in the map, for purpose of controlling operation of the vehicle. (See, for example, Figure 4, column 11, lines 28 through column 13, line 31). As noted at column 11, lines 31-34, the altitude data necessary for this purpose are included in the geo-reference map data. Such information is used to determine the physical characteristics of the expected course of travel, as described at column 11, lines 36-49, and to control the vehicle accordingly. That is, the anticipated conditions along a course of travel are predicted using an expected position of the vehicle as an index onto the predetermined geo-reference map, as discussed at column 12, lines 41-52, and used for control purposes, as discussed at column 13, lines 14-31. Nowhere, however, does Watt et al. teach or suggest the features of the invention described above, in which position data, including in particular altitude data calculated by

a computing unit in a position determining module is supplied via a vehicle data bus, such as an engine or transmission control unit, in place of information determined from a separate altitude sensor.

Accordingly, for the reasons set forth hereinabove, Applicants respectfully submit that claims 1-7 and 10-12 herein distinguish over the cited Vieweg, Honkomp et al. and Watt et al. references, whether considered separately or in combination.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #095309.50985US).

Respectfully submitted,

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